

Claims

1. Method for attaching two surfaces to each other comprising the steps of

5 a) providing a bioadhesive composition consisting of an aqueous solution of a bioadhesive polyphenolic protein, which protein comprises 30 – 300 amino acids and consists essentially of tandemly linked peptide repeats comprising 3 – 15 amino acid residues, wherein at least 3 % and preferably 6 – 30 % of the amino acid residues of said bioadhesive polyphenolic protein are DOPA;

b) providing a preparation comprising periodate ions;

10 c) mixing said bioadhesive composition and preparation comprising periodate ions so that the periodate ions constitutes at least 1.80 mmol/g of the final composition;

d) (i) applying the mixture to at least one of two surfaces to be attached to each other or (ii) applying said composition and said preparation comprising periodate ions without any specific order, to at least one of two surfaces to be attached to each other, thereby mixing the bioadhesive composition and preparation comprising

15 periodate ions;

e) joining said surfaces to each other; and

f) leaving said surfaces for sufficiently long time for curing to occur.

20 2. Method for coating a surface comprising the steps of

a) providing a bioadhesive composition consisting of an aqueous solution of a bioadhesive polyphenolic protein, which protein comprises 30 – 300 amino acids and consists essentially of tandemly linked peptide repeats comprising 3 – 15 amino acid residues, wherein at least 3 % and preferably 6 – 30 % of the amino acid

25 residues of said bioadhesive polyphenolic protein are DOPA;

b) providing a preparation comprising periodate ions;

c) (i) mixing said bioadhesive composition and said preparation comprising periodate ions so that the periodate ions constitutes at least 1.80 mmol/g of the final composition;

- d) (i) applying the mixture to the surface to be coated or (ii) applying said composition and said preparation comprising periodate ions sequentially, without any specific order, to the surface to be coated, thereby mixing the bioadhesive composition and the preparation comprising periodate ions; and
- 5 e) leaving said surface for sufficiently long time for curing to occur.
3. Method according to claims 1-2, wherein the concentration of periodate ions is at least 1.90 mmol/g in the final composition.
- 10 4. Method according to claims 1-2, wherein the concentration of periodate ions is at least 2.00 mmol/g in the final composition.
5. Method according to claims 1-4, wherein the concentration of the bioadhesive polyphenolic protein in the bioadhesive composition is in the range of 10-50
- 15 mg/ml.
6. Method according to claims 1-5, wherein at least one of the surfaces to be attached or the surface to be coated is a biological surface.
- 20 7. Method according to claims 1-5, wherein at least one of the surfaces to be attached or the surface to be coated is a non-biological surface.
8. Kit for attaching two surfaces to each other or coating a surface comprising providing
- 25 a) a composition consisting of an (acidic) aqueous solution of a bioadhesive polyphenolic protein, which protein comprises 30 – 300 amino acids and consists essentially of tandemly linked peptide repeats comprising 3 – 15 amino acid residues, wherein at least 3 % and preferably 6 – 25 % of the amino acid residues of said bioadhesive polyphenolic protein are DOPA and wherein the concentration of the
- 30 bioadhesive polyphenolic protein is within the range of 10-50 mg/ml; and

b) a preparation comprising periodate ions.

9. Kit according to claims 8 further comprising a device(s) for applying a specified amount of the solution of the bioadhesive protein and the preparation comprising periodate ions to at least one of the surfaces that are to be attached to each other or to the surface that is to be coated.